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VALUES, POSITIVE AND RELATIVE.*

THE RELATIVITY AND UNIVERSALITY OF VALUE.

Ancient controversies about the fundamental basis of moral obligation have reached at least a preliminary solution in the doctrine that that action is right which best satisfies contemporaneous needs. In order, however, to establish the nature of the needs in question, it has been necessary to surmount a preliminary difficulty; for since it is impossible to identify the needs of the time with those of any individual, it has become necessary to assume that the former needs correspond to a total or average status in existing society, in the particular aspect of social activity under consideration.

What is thus generally true of the obligation of human action, must be true specifically of each category; and the present paper will endeavor to draw conclusions from the working of this principle within the economic category.

The reader is presumed to be familiar with the marginal doctrine of value, which allows value to be treated as a measurable quantity. This quantity, however, has remained individual and subjective. Various consequences reaching out from it to the market and to common economic interests have, indeed, been traced, and a few advanced writers have ventured to add up these individual values or have boldly treated society as an individual making quantitative valuations of its own.

It is natural to suppose that some relation between individual and social values must exist similar to that between individual and social morality; but before we proceed to examine exactly what that relation is, let us pause a moment to convince ourselves of the objective reality of the relative economic standard.

* The writer wishes to acknowledge valuable suggestions received from Professor Simon N. Patten as to the proper scope of this paper

Without some standard, we are evidently quite at sea. The sufficiency or insufficiency of individual values (in the payment of debt, for example) cannot be decided according to an ideal standard, since such a standard does not reflect contemporaneous needs; nor can they be decided by a haphazard comparison of the claims of different social classes, nor of the conditions of different individuals (*e. g.* a creditor and a debtor), since such general considerations lack requisite definiteness. Just as an ideal standard is too absolute, so a weighing of general interests is not absolute enough. It is necessary, therefore, that individual values be compared to a social concept of value.

Such a social concept of value is not a mere fiction nor merely an intellectual necessity. While not tangible in the sense of a yard measure, it is objective in the highest degree, since, as will be shown later, it exerts a direct and powerful effect upon the individual by keeping him in constant touch with economic society, whether that society be viewed in the cross-section of contemporaneous distribution or in the perspective of deferred payments.

Some of the causes that have hitherto delayed the recognition of the relative standard of value are mentioned below. It is sufficient at present to notice that the principle upon which this standard is founded is the tacit assumption and basis of all social and national speculation. It is recognized in popular language. It is common to say that "The times are good," or "The times are bad." The former expression means that social *values* have increased, not merely that social utilities have increased; for an increase in the total utilities of society which is followed by a more than equivalent deduction in the form of rent, may not increase the purchasing power of the industrial world. The economist is yet to be heard of who has been able so scrupulously to guard his language as to avoid all statements about social prosperity, while historians speak of "good times" with refreshing naïveté. Even where allusions to

social prosperity, as such, are absent, they are replaced by a reference of private actions to the public point of view. An investment in government bonds, in time of war, may be capitalization from the private point of view, but is probably a loss from the public point of view. This point of view can be no other than the social standard of value. It cannot be that of any individual or class, except by chance, for one individual cannot be presumed to be nearer right than another; nor can it omit the interests of any individual or class, for then the abstraction of some portion of society will render the standard that of a different society from the one in question.

The actuality of a standard of value is thus proved by its necessity and its relativity. The difference between different economic epochs is precisely the difference between the economic standards. They are the normal expressions of the respective epochs. They are, therefore, real and objective.

The positive nature of the standard of value as a social concept having been thus briefly explained, the argument of this paper will be directed toward a more accurate knowledge of its properties. Following, therefore, the analogy of the individual in order to obtain the necessary simplified social premises, we shall proceed from individual values by imperceptible steps up to social values.

The preceding remarks have been intended to show the necessity to the human mind, both popular and technical, of the relative and objective idea of value. It is now proper to prove the continuity of this idea with that of individual values. The question of deferred payments is, perhaps, the most important of those that depend upon the social idea of value. The inquiry, therefore, may be made more specific by asking whether this question of deferred payments does not depend upon principles which are continuous with those upon which the ordinary assignments of values depend. The individualistic idea must be reconciled with the social

idea. It is fair to assume, subject to later demonstration, that total cost is the sum of all separate costs, and that total values are the sum of all separate values, although the several separate values may never precisely coincide with the several separate costs. If such a tendency to coincide, however, did not exist, we could not assume that the sum of all values corresponds to the sum of all costs. We must not only show that values are summed up from individual commodities to social wealth and from individual persons to society, but that the same method of reasoning applies throughout. That total value is the *sum* of all particular values will be shown to follow directly from the marginal statement of value to the effect that total value is the product of a marginal quantity and of a coefficient denoting the possible number of quantities available as substitutes for it.

The marginal quantity must naturally be economic; that is to say, it must depend upon utility. It may represent marginal utility either directly or by some other economic quantity, *e. g.* a commodity upon which it depends. A class of multiples obtained in this way may be represented geometrically as a parallelogram, and the writer assumes the liberty of speaking of value as an *area*. The demonstration, therefore, simply shows graphically that the marginal theory unifies logically all concepts of value. The margin is the point of equilibrium of cost and reward, *i. e.* the point where it does not pay to put forth further exertion. Value is the product of total cost and marginal reward, *i. e.* of the reward to the last exertion into all the exertions. So far as costs and rewards are homogeneous, value is continuous; it is a *sum*, and may be reasoned about continuously in the same way. Such homogeneity is coëxtensive with humanity. Therefore, such equilibria and multiples are equally extensible. There is no disjunction between individual and social values or costs. Value may, therefore, be predicated of groups as well as of single commodities. That total social value is not palpable to persons unaccustomed to

economic thought does not argue its unreality, but rather proves its psychic or unmaterialistic nature.

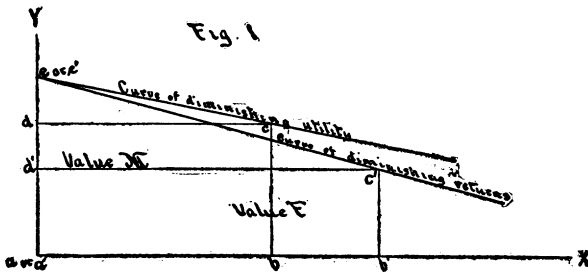
The continuity of value, in the wide meaning here indicated, is not, indeed, hastily to be assumed. The valuer takes so many different points of view with respect to the thing valued, and his conduct toward it at different times is so varied, that it seems possible that different uses of the term "value" may arise within economic science. That law of thought which makes science a process of generalization makes it imperative for the economist to search for a single all-embracing concept of value. The result should be that there is but one economic value, while it may have many aspects. Two principal aspects of economic value present themselves in the industrial world: the one is the ratio of contemporaneous values commonly treated in the economics of distribution as the exclusive concept of value; the other is the effect upon the quantities already equated by the first ratio due to another ratio—that of successive social values; *e. g.* if the first ratio declares that exchange takes place under the formula $a = b$, the second ratio declares that what was before $a = b$ is now become $2a = 2b$. It is necessary to inquire whether the meaning of the term "value" in individuals' valuations is the same as the meaning of the term in social valuations. In other words, do the same forces exist in the two sorts of value in such a way that the two values are generically identical?

The two values of which science takes cognizance may be called merchant's value and farmer's value, or value M and value F. The former is represented graphically, as in Fig. 1,* by the quadrilateral $abcd$, in which ab represents the number of commodities, bc their marginal utility, and ec the curve of diminishing utility.

* A suggestion for this figure may perhaps be found in Professor Alfred Marshall's "Principles of Economics," 3d edition, book iii, ch. iii, § 1, n. 1: "We may say that the *Return* of pleasure which a person gets from each additional *Dose* of a commodity diminishes, till at last a margin is reached at which it is no longer worth his while to acquire any more of it."

Value F, on the other hand, disposes of the value forces in a very different manner: $a' b'$ represents the investment or cost of production, $b' c'$ the marginal reward, and $e' c'$ the curve of diminishing returns.

Value M is employed by persons engaged in exchange and commerce, who chiefly think in terms of money. Value F is employed by those who produce and consume. It allows them to compare cost with rate of returns, and with surplus. They are enabled to weigh exactly whether the total of goods has reached the desired total value, and whether an increase of sacrifice is worth while. The meaning of value F, therefore, is that the total number of commodities represented by the value-area just repays the effort



expended to secure them. If a man is a producer, the returns to his last effort indicate that, in his judgment, the utility of those returns repays the effort; if he is a distributor or consumer, the utility of the last commodity purchased repays the purchase-money. In the former case, the utility is represented in the form of commodities, and the cost is an immediate factor in the form of labor or effort; in the latter case, the cost is represented by commodities and the utility is an immediate factor in the form of price or consumption. It follows, therefore, that the same man may make calculations about the same goods from either point of view, and that these calculations will represent the same utilities, the same final efforts, and the same total values.

In so far as the same forces extend beyond the interests of individuals to groups and to society, the same graphic representation applies. If the conclusions of the first part of this paper are correct, that the forces that go to establish cost, value, and surplus are social as well as individual, then this form of representation applies to society.

Now, there is nothing absurd or impossible in applying to society the form of representation of value M. We can imagine that society is willing to purchase so many goods and no more, simply because the utility of a further increment is not great enough to induce further social sacrifice; that is, because the satisfaction afforded by it is not at an equilibrium with, *i. e.* is not equal to the effort to obtain it. In this case, however, marginal cost and reward are indistinguishably blended into one line, *bc*, that of utility. There is nothing, therefore, to represent separately the chief objects of social inquiry. The results reached in M are those interesting principally to individuals engaged in exchange. Such persons do not care, at the moment, for an analysis of cost and reward; what they want is a comparison of the combined effect of cost and reward in the case of the marginal commodity, with the total number of commodities. Society, however (F), wishes to compare the returns to its last effort with the total number of equal efforts, and is satisfied with the fact that the total amount of commodity-reward really expresses the amount of satisfaction, without setting the latter off by itself. It is, therefore, natural that the students of exchange-value and of distribution should employ value M, whereas students of social prosperity employ value F.

It is found to be true that these two values are identical, the one which admits of the most convenient application, may be taken to represent all cases of value, for the purpose of showing continuity.

At the point at which money calculations cease, M may be dropped without any break in continuity of value. In

other words, we may ascribe value as truly to those larger groups whose calculations are in terms of cost and surplus, as to the individuals whose calculations are made in terms of goods and satisfactions. If, finally, we find that present society as a whole is, in a sense, a trader with past and future societies, we may freely revive *M* as an expression for social value.

Each individual, however, has his value *F* as well as his value *M*. Even though he be a merchant, he must continually compare his outlay with his returns. It is this comparison which establishes his individual margin of consumption. He is a microcosm, constantly seeking to obviate waste and to increase efficiency. He inquires how much purchasing power, *i. e.* productive force, in his case, he shall expend, in order that the marginal return shall be greatest, consistently with a given capital. In selling, he inquires what marginal price will bring the greatest value, consistently with the stock of goods on hand. Now these two values are generically identical. Whether he be a producer or a consumer, he has nothing but value, pure and simple, in mind. Too much stress cannot be laid upon the oneness and universality of economic value in whatever combination its elements may momentarily appear.

The general social use of this duality of value is evidently in order to allow the individual to compare his personal margin of consumption with that of society; and to allow him to effect those adjustments of his private economy, his efforts and self-denials, which shall keep him in normal relation with society. If his efforts are too great, they will fail of appreciation and reward; if too small, he will be distanced in the social race. If his marginal efforts are too great, he will be paid only the price of the less efforts of others; if too small, he cannot be paid at a higher rate than the greater efforts of others, and the current rate of payment will not put him in as good a position as others unless he increase his efforts again. At the same time, he is to have

play for that individual character which affects society and makes for differentiation in it toward the ideal. This differentiation is chiefly accomplished through extraordinary and unrewarded efforts—through an unusually low individual margin. An individual marginal effort greater than the normal marginal effort will not be rewarded *economically*. It will give rise to a moral value; it takes the activity in question out of economics and into the category of ethics, and even of ideal ethics. When we say that the action of the community is abnormal, we mean that it tends toward a lower ideal. A reformer is one who seeks to stay this retrogression.

Suppose that an individual's marginal production is above what is normal. Then, at the market price of goods, the marginal utility of money will be low to him, and the curve of diminishing utility ("demand curve") will be steep.* He will not be immediately deterred from extending his operations further, and, indeed, ambition, professional pride, or some other motive than that immediately implied in gainful occupation is pretty sure to push him on, if the value of money continues fairly even, until his margin of consumption is reduced to that of society.

If his marginal return is lower than what is normal, then the marginal value of money and of goods will be high to him, and his curve of utility will be flat; he will inevitably seek for better investments and more favorable opportunities, in order that his margin of production may rise to the normal level.

In the market-price, society possesses a most potent means of creating an absolutely identical margin of production or consumption for all. It is to be noted that the economic problem of the relation of the individual to society is one of equal total production of each individual only in the sense that total production is approximated through equality at the margin; but equal margins mean very different production

* Alfred Marshall, "Principles of Economics," 3d edition, Vol. I, p. 175, note 1.

to different persons. Moreover, society is really not concerned with the leveling of individual economics, except in so far as individual effort and enterprise are involved. Those products which are adventitious or due to personal advantage are unsocial and uneconomic. Doubtless, diversity in advantage in each line of production is essential to society for reasons that present themselves to the economist as pertaining to the outer ethical world. To him this non-economic or quasi-economic element is the incommensurable portion of his subject-matter. It is measured only by physical standards; it has no marginal or economic measure. Economically it is a residual or a surplus. Measurable elements alone are economic forces. Economic forces play at the margin of effort and reward in such a way as to correlate all the measurable elements into one organization; and the argument of this paper is that this play of measurable forces is as active in the equating of the economic circumstances of society at different times as of different individuals at one time.

This identity of values in exchange (M) with those of production (F) may be graphically demonstrated. The construction of Fig. 1 has been already described; ec probably lies above $e'c'$, because, as marginal returns ($b'c'$) decrease, marginal utility (bc) decreases less rapidly; in fact, in so far as it depends on absolute returns, relatively increases; bc does not absolutely increase because of the independent estimate, which causes utility to decrease with absolute quantity (ab) faster than it increases from scarcity at the margin of returns ($b'c'$).

The curve ec , therefore, contains two elements: an absolute estimate, due to diminishing worth* of successive increments of goods; and a relative estimate, due to the rate of decrease of $b'c'$. The combined result is expressed, at the margin, by the line bc .

* See present writer's article, "Evolution of the Idea of Value," *Journal of Political Economy*, September, 1895, p. 427.

The curve $e'c'$, however, has only an absolute shape, due to the absolute returns to the investment, which is represented by $a'b'$. This absolute relation is expressed at the margin by $b'c'$.

If, now, the two quadrilaterals $abcd$ and $a'b'c'd'$ are made up by the same forces acting always in such a way as to produce the same effects, then they may be taken to be equal. At first it would seem as though each was independent of the other, because the curve ec contains an element (worth) entirely lacking in $e'c'$. Worth is the element in demand which is due to preference for an object for its own sake, independently of its quantity. This only proves that the two curves are independent, but not that the rectangles of whose sides c and c' are the loci are independent; for it may be that while worth cannot affect diminishing returns ($b'c'$) directly it can produce a sufficient effect upon investment ($a'b'$). Similarly, while diminishing returns ($b'c'$) cannot affect worth, it can affect diminishing utility (bc), through its investment ($a'b'$), and through investment total commodities (ab).

Suppose worth to increase; bc will continue to shorten (but more slowly than before); $a'b'$ will lengthen proportionally faster; $b'c'$ will grow shorter (but not proportionally), and ab will lengthen proportionally slower with the shortening of $b'c'$. In other words, bc and $a'b'$ will decrease and increase in the same proportion; while ab and $b'c'$ will increase and decrease in the same proportion. Thus, both areas M and F will increase absolutely: M , because bc decreases less rapidly than ab increases; F , because $b'c'$ decreases less rapidly than $a'b'$ increases; but this occurs in such a way that while $b'c'$ shortens more rapidly than bc , at the same time $a'b'$ lengthens more rapidly than ab . Mathematically expressed, $\frac{b'c'}{bc} = \frac{ab}{a'b'}$. These ratios being absolutely constant, it follows that the same forces act constantly in the two figures in such a way as to produce complete compensation, and that consequently $a'b' \times b'c' = ab \times bc$; *i. e.* $M = F$.

In other words, an expression of value in terms of commodities and utilities is exactly the same as an expression of value in terms of efforts and rewards. Value is a statement either in terms of the utilities that depend on commodities, or in terms of the commodities on which the utilities depend. Utilities and corresponding commodities must be proportional. Then why not economically equal for all purposes of value measurement? In fact, if not commensurable by physical standards, then their constant relation is best expressed by an equality of value. The dissimilarity between the factors of the respective parallelograms is expressed by their difference in form; the economic identity of product is represented by the equality of areas.

It seems to be sufficiently demonstrated that we may treat value as an area for general purposes of economic investigation. The ground that we have gained is similar to the conclusions of any syllogism. It is a rule of thought that a conclusion once reached may be used as a premise for further argument. This procedure allows us to forget the analyses and combinations by which we arrived at our conclusion, and to devote our whole attention to a progressive step in our reasoning. The treatment of value as an area allows us to deal with it as a positive quantity presented to the imagination by a symbol of space, and the analogies flowing from the properties of space may be hoped to afford valuable stimulus toward conclusions that will bear the test of economic practice.

VALUE A SIMULTANEOUS EXPRESSION FOR RATIO OR DISTRIBUTION AND FOR WEALTH OR PROSPERITY.

While it has been shown that there is no break between the individual and society in the method of reasoning upon questions of value, it is still possible to illustrate more definitely the fact that the marginal theory of value accomplishes an end which must always mark an advance in science, viz., it expresses in one concept what had previously

been two separate concepts. The two concepts in question are that of a ratio in exchange and that of wealth, prosperity, or want-satisfying power. It is true that the latter concept lies behind the former, since a ratio in exchange is simply a comparison of values; but the dual statement corresponds to an habitual dual treatment by economists which is here sought to be unified.

The idea of value is, of course, a possession of the human race, and while the positive standard of value has fluctuated constantly, these two characteristics of the idea of value may be assumed to have been always present, although, perhaps, in varying amount. While the standard of value is objective, the conception of that standard is subjective. It is perfectly possible that while students of value are attempting to analyze the standard, it may change. Notwithstanding the continual presence of these two aspects of value, economists have laid very different stress upon them. The object of the present paper is one of combination. The attempt is to give as nearly as possible a comprehensive *résumé* of the action and reaction of value between distribution and progress.

It has already been shown that all goods have their value, whether they be single goods or composite goods, or even the total goods of society; and we might proceed at once to explain the bearing of this truth upon the standard of deferred payments, were it not for the necessity of putting in its true light the relation of exchange-values in a community, to total values; for exchange-values are the ones considered in the concrete form in which value has usually been treated, in studying the laws of distribution and production; while total social values are those necessarily involved in questions of social prosperity.

Political economy tries to explain two principal questions: the first is, "Why do I have to pay a certain price for a commodity?" The second is, "Why am I richer or poorer than I was?" Economists have until recently confined

their theory of value to the answer of the first question. Evidently, however, the second question involves value no less than the first. If questions of wealth do not involve principles of value, then all talk of value is useless. On account, however, of their restricted use of the term "value," they were logically forced to treat of questions of prosperity in terms of commodities. Questions of prosperity, however, forced themselves to the front, and, in default of a sufficient theory of value, were treated under the quasi-legal category of quantity of commodities. This method greatly hampered reasoning upon the subject; for there was no way of accounting for the fact that a man or a community might become richer, *i. e.* might increase his or its purchasing power, while at the same time the number of commodities at his or its disposal, when measured by physical standards, might decrease. Economists were not ignorant of the fact, but treated it either as abnormal or as paradoxical or as a curiosity.

Now, however, that wealth* on the marginal theory is measurable by economic standards, while prices also are measurable in the same standards it is opportune to make a statement of the simultaneous function of value in these two aspects, and of the light which value throws upon the action and reaction between these two categories—that of exchange and that of wealth. Further, the present paper endeavors to show that the same concept of value displays the same relations between social categories of exchange and of wealth. The persons treated of are different, the mode of reasoning is substantially the same.

The complete continuity from one set of values to the other, demonstrates that we have a right to use forms of reasoning with respect to producer's values (F) that were pertinent with respect to exchange-values (M). It will now

* By wealth is meant total economic goods. No inference is to be drawn that wealth and value increase together, or that value is a universal measure of wealth. It is simply pointed out that wherever wealth is involved in calculated industry, there value appears.

be possible to give a more graphic representation of social values than previously in this paper. The point to which attention is called is this, that every case of a change in exchange-value may, or may not, correspond, or may only partially correspond, to a change in total social values; and that the simple representation of value as an area will make this state of affairs perfectly clear. Since merchant's values and farmer's values are equal, and since the latter are the ones chiefly employed in deciding questions of social prosperity, we are enabled freely to employ them continuously in our discussion. Let it be assumed, therefore, that all the goods in the community are represented by values computed upon the basis of investment or cost, and marginal returns. It has already been shown that the social margin, through the market-price or any other influences which tend to equalize men's activities, has a distinct relation with individual margins. Contracts to be executed in the future are made at the margin. In fact, the man who does not accommodate himself to the margin is an economic pariah. It is, indeed, true that many men do not conform to normal industry; but we do not need to concern ourselves with them further. Strictly speaking, however, it does not appear to be necessary that individual values be reduced to the social margin in order that the sum of them be taken in calculating total social value. Whether an individual value be reduced to the social margin or not, it ever remains the same value. It is true that the social margin has the effect pointed out, of increasing or decreasing individual values; but this is a secondary effect, an effect on production. The mere instantaneous translation of individual values from isolated individual economy to organized social economy cannot, geometrically speaking, change their area. If a margin is lengthened, the base, which is the multiplier, will be correspondingly shortened. Therefore, we are not called upon to suppose our collection of individuals to compose a strictly economic society. Of course, if they do not, normal action

cannot be predicated of them, nor will individual values be the same as they would if the social adjustment had taken place. The point is that the mathematical sum of values, costs, and rewards may be taken independently of a common margin, since each individual value once obtained is a positive quantity of the genus value, and hence commensurable with all other quantities of the same genus. Thus, on any hypothesis (either of a common margin or of unrelated margins), total social value is the sum of individual values. The necessity of the social relation is that the social margin be formed and thus a relative *standard of value* be obtained.*

While the exposition of the comprehensiveness of value may be said to be complete in its general features, it is possible to present its operation more in detail, and, by a further use of the graphic method, to afford a more simultaneous concept of the nexus of actions and reactions between the individual and society, and between exchange and prosperity, which has already been traced as far as possible without a new appeal to such aid. The old theory of value as a ratio rises up to confuse us. It leads, indeed, to correct results in many respects. Is it abolished by the new theory? We certainly could not get along without it. We must constantly compare values. In fact, the principal purpose in obtaining values is in order to compare them. The new theory simply says that the value is not the comparison but an absolute prior quantity. The old theory assumed these prior quantities as general economic forces determining ratio of exchange, and called the latter "value."

The transition to the new theory is simple: if the ratio of commodities is given, then the ratio of values must be the reciprocal; for the ratio of commodities must be the immediate result of the ratio of values. If corn and wheat, measured by physical standards, exchange at 2:1, then the

* Professor Franklin H. Giddings considers that all marginal utility presupposes a social condition. "Principles of Sociology," p. 42. It may therefore be necessary to distinguish the social margin from individual margins which are social, but not *the* social margin.

absolute values of corn and wheat must be as 1:2. This must be so, since every change in ratio of exchange of commodities must register a proportional change in the values of those commodities.

The first question, then, that naturally occurs is as to the precise position to which we must relegate the idea of *exchange* value. The familiar doctrine that the totality of values can neither be increased nor diminished is a corollary of the theory of exchange value which cannot be true if the doctrine of absolute values holds. Nevertheless, this assumption has been particularly useful in the attaining of truth with respect to the mutual relations of wages, profits, and prices; the interests of science, therefore, demand its preservation, if it can be harmonized with the graphic method of value areas, *i. e.* with the marginal theory.

In treating value as an area, it is not at all necessary that the area be graphically represented in the form of a rectangular parallelogram. It may equally well be represented by surfaces equal to those in the parallelograms, but bounded by curved lines.

Let us suppose that the commodities or groups of commodities to be exchanged against each other in a society are arranged about a circle (Figs. A1, B1), and that their exchange ratios are in equilibrium. By this is meant that we may represent the value of all the commodities by equal areas as the most convenient starting-point. In this way departure from original value-quantity will be more easily observed. The values of the commodities or groups, then, are represented by sections of the broad perimeter. Then the total value in society will be represented by the total broad perimeter.

Let us suppose some disturbing element, either in the factor of cost or in that of reward, to increase the value of wheat. One of two things may take place: either the increase of value will result in an addition to social values or it will not. The old exposition of the theory of

Figure Showing the Mutuality of exchange values

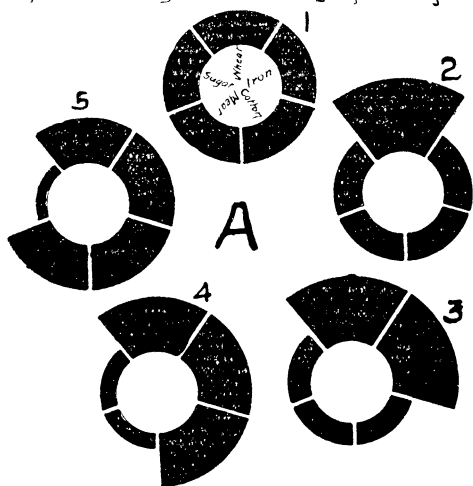
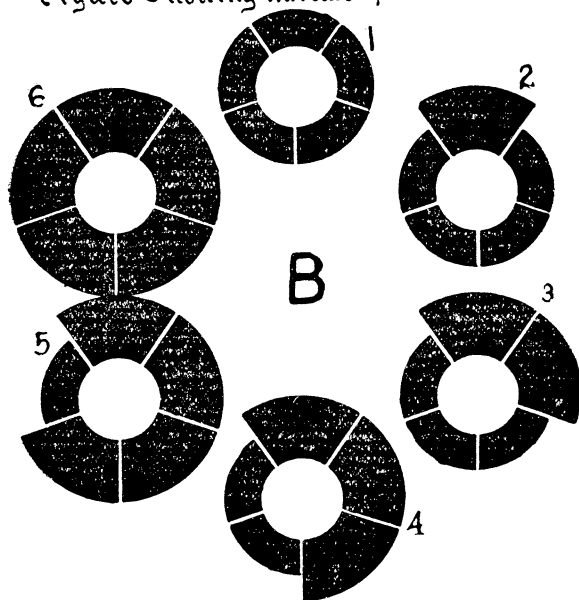


Figure Showing Increase of total Values



exchange-values stated that no addition to value could take place. The reason of this statement was that value was looked upon as a ratio and not as an area. On the old supposition, since the conception of social value-areas was absent, the increase of value of wheat (Fig. A2) was necessarily accompanied by an exactly equivalent contraction in value of iron, cotton, meat and sugar, so as to leave the total value-area the same as before. If, now, we can conceive of additions of value as being made successively to the remaining commodities, we find that the possible additions of value are limited in such a way that the values of commodities that have already risen must fall gradually until, when the circuit is completed, the restoration of equilibrium finds us still confined to the same constant value-area (Fig. A1).

This exchange conception of value may be represented numerically, as follows:

	Wheat.	Iron.	Cotton.	Meat.	Sugar.	Total Value.
Fig. A1,	5	5	5	5	5	25
Fig. A2,	9	4	4	4	4	25
Fig. A3,	8	8	3	3	3	25
Fig. A4,	7	7	7	2	2	25
Fig. A5,	6	6	6	6	1	25
Fig. A1,	5	5	5	5	5	25

The theory of exchange-value, including no concept beyond that of a ratio, unconsciously identified total values with total mass of commodities, while denying that there was such a thing as total values. It then proceeded, properly enough, to assume that the mass of commodities (*i. e.* total value on the absolute value theory) remained constant, and easily deduced the result that the extra commodity gains of one class must be the loss of another class of distributees, *e. g.* that wages fall when profits rise. Instead of openly assuming the constancy of values, that theory tacitly assumed the constancy of goods. It proved that if one class obtained more goods, another obtained less. It also admitted that

total goods might vary, but denied that the variations could affect values. The great difficulty lay in the fact that it was necessary to assume that, since value was a ratio, values could not increase; while, at the same time, it was admitted that there could be an increase of wealth in society. These two statements were repugnant, but were never reconciled under the old theory. Reasoning about distribution would have been perfectly correct on the supposition of unchangeable value, if positive values had been recognized. Economists, however, were driven to assume unchangeable total of goods or else give up the whole inquiry. But what if goods changed in quantity? On the supposition of constant quantity of goods, economists could at least say that if X did not get the goods, Y did; but in the case of constant quantity of value and changing quantity of goods, the old theory was wholly at sea. It did not consider the case as one of values. It simply admitted that if labor was more efficient, it might obtain higher reward in commodities without lessening the reward of capital; but this conclusion was not one in terms of value. The result was correct so far as it went, but was not economic. No law of substitution was known as a general solvent of present and future distribution through value. Such a law could only be discovered through the marginal theory. Common sense pointed to right conclusions, but there was no concept broad enough to embrace two periods. At one period a certain ratio of exchange exists between commodities; at another period, another. But the differentiation of values by and through which this occurs was too broad a generalization for the earlier stage of the science. Value, as a universal measure of all production and distribution (within the economic sphere) present and future, was not dreamed of.

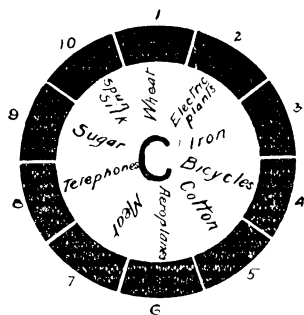
The old theory admitted that the same or different proportional divisions might occur of different funds at different periods; but exchange-value gave no way of discovering whether the world was better off when a larger fund

was distributed. It was assumed that such was the case, because what men want is wealth; but that method was unable to measure the new wealth and its effects on different classes, because it looked only to the distribution of the objects of wealth. A different distribution of objects of wealth, while it certainly will be proportional to the total values then existing in society, may or may not increase the former wealth of the distributee, and it is necessary to be able to measure this fact also. This is what is meant by saying that we must have a test of prosperity as well as of proportion in exchange. A man may have a smaller ratio than formerly and yet may have absolutely greater value; and this might even be true although he received absolutely less commodities.

What was needed, therefore, was a conception of value which should hold equally well for the wealth of to-day and for that of to-morrow, for that of society and for that of individuals, by means of which the connection between them could be traced. This need has been satisfied by means of the social margin of value and total values.

If we regard the object of men's strivings to be not goods, but values, then we see that our theory does not destroy conclusions that follow from the old principle that exchange-values of goods are not totals and only affect proportion of distribution of given funds. Moreover, this conclusion is as easily deduced from the assumption that the value-areas of society increase (Figs. B and C) as from the assumption that they are constant or that goods are constant (Fig. A). If we suppose (Fig. B) a constant increase of values, counterbalanced by no diminutions whatever, we reach again the equilibrium of exchange-values from which we started. We see that profits may, in this case, be increased without decreasing wages, because our idea of value has been enlarged to include new values—the idea is more dynamic. Figure B6 represents precisely the same state of exchange-values as Fig. B1. It is true that the wave of

rising value, as it sweeps about the circle, is neither preceded nor followed by a depression as in Fig. A; but it also again reaches a position of equilibrium. The manifest advantage of this demonstration over that of the exchange-value theory is that we here deal exclusively with homogeneous quantities. We are not troubled with a disparate confusion of values, on the one hand, and of goods on the other, but freely increase or decrease our quantities at will. Assuming for Fig. B a constant addition of five, then Fig. B6 is valued at 50, while Fig. B1 is valued at 25, *i. e.* each group of commodities is worth 10 instead of 5; but their ratios are unchanged. If, however, the additions to value consist of new wants and provisions for want (Fig. C), then the same total area is attained by lengthening the perimeter instead of broadening it, *i. e.* new commodities are introduced, but the value of each and their ratios remain unchanged.



To recapitulate: the theory of exchange-value contemplates only the condition of affairs represented by Fig. A. Value, as a total, is not conceived of, and, therefore, if it have any representation at all, can only, in the language of areas, be represented as constant. Positive additions to value being excluded, the only meaning that any stretch of imagination could give to Fig. B under the exclusive exchange-value theory would be that additional production takes place, and that this is what is represented by the accretion of area. (However, area of goods should, perhaps, diminish in order to represent increase of value.) The result will be the same as in Fig. A; for, other things being equal, the new production decreases exchange-values as much as it increases them (although it may greatly change absolute values). The distinction between B1 and B6, on that theory, can

only be one of quantity of products and not one of quantity of values. If A1 represent ratios of exchange-value, B6 can only represent ratios of new products corresponding to these same values.

But, if value is an area, then the accretions from B1 to B6 are real additions to total value. Exchange-values vary at each step, and are fully represented by the ratios of the areas of the respective segments, on the principle that values are inversely proportional to exchange ratios of goods, as above explained; and when the circuit of value-accretion is complete, then total values have gained, while exchange-values have been restored to the original equilibrium. The requirement of the exchange-value theory that total value remain constant is met, and the expansion of value expressed by the marginal theory is also indicated. The supposition in Fig. B is that no diminutions of value take place. The fact would generally be, however, that some diminutions of value-area would take place in the *different segments*, but that they are, on the whole, more than offset by the accretions in an advancing state of prosperity. For sake of clearness, the two processes of relative shrinkage and absolute expansion have been separated in the diagrams. The diagrams illustrate the well-known marginal theory that all value-changes, a result of a disturbance of the equilibrium of cost and reward in the case of each commodity, may or may not cause an increase of value in the case of that commodity, and hence may or may not contribute to increase the sum total of social value; and that, in each case, the question is whether total, *i. e.* social, value has been changed. The answer is to be found by inquiring whether the change in particular values has had such an effect that total cost has been changed in relation to total marginal reward in such a way as to change total value. If Fig. 1 be taken to represent total value, it will illustrate the case in question of a sum of values: If we take total cost and reward as constant, then distribution of them through

changes in the several marginal equilibria, serves to vary values in exchange without affecting the total surplus.

If we take the relations of the various particular marginal equilibria as constant (as represented in the diagrams by the different segments), then changes of total cost and reward serve to vary total value and surplus without affecting exchange values. Both processes take place simultaneously in practice. Each act of production has an effect both on exchange-value and on wealth, through the mechanism described.

THE APPLICATION OF VALUE-AREAS TO THE QUESTION OF DEFERRED PAYMENTS.

What addition to the exchange-value theory has been gained, it may be asked, by proving the continuity of value through all commodities and groups of commodities and activities of producer and distributor or measurer of commodities, until we have attained the sum total of commodities? The world is our limit; we cannot compare this total, nor employ it. The answer is that, at least, we could compare our total values with those of Mars, if conditions allowed, and that it would be absurd if we could not. But the practical answer is that total value is the most useful and comparable of all value concepts: exchange-values are the ratios of value-areas of commodities at one and the same moment; total values afford the ratios of the total social value-areas of different moments, periods, and ages, with each other. Total values are the positive norms of different periods and hence must be employed as the standards of deferred payments; they are thus the only means of solving perhaps the most universally and uniformly applicable economic problem. The application of normal reasoning to deferred payments will, therefore, now occupy our attention.

That society is constantly regulating its deferred payments on the principle of value already set forth, does not,

of course, appear without explanation. Such is, however, the case. Deferred payments are regulated by the same principles of value as ordinary sales. Two qualifications of the accepted conception of value alone are necessary to prove the truth of the last statement. In the first place, the principle of value which was primarily applied to the exchange of commodities and services, is now applied to a comparison of social totals. It, therefore, results in a ratio or comparison of norms or of social uniformities, for such norms have been shown either to be such totals or to be based upon them. In the second place (and this follows from the former proposition), while exchanges between individuals at one time are under one norm of value, and hence at one social margin of value, exchanges between individuals into which time enters, involve two norms or uniformities of value—that of the time when the obligation is incurred, and that of the time when it is liquidated.

Further: the goods exchanged at any moment, it is agreed, are of equal value; in other words, each party returns the same value that he receives. Now the object of the foregoing reasoning has been to show, that when the return payment is not made on the spot, but after the lapse of time, not only is it still true that the same value is returned, but that the delayed return of value is established or governed by the same principles as the immediate return of value. Every one admits, as self-evident, that the debtor should return to the creditor the same value that he receives, but many withhold assent when called upon to make the further admission that the organization of society is such that the same value will naturally be returned. The demonstration, therefore, has been directed to this point, that in all exchanges values are equated upon the same principles. How is this worked out in practice?

Suppose R receives from S a loan of commodities to be returned in one year. Now, suppose that at the end of a year, the total value of commodities in the community has

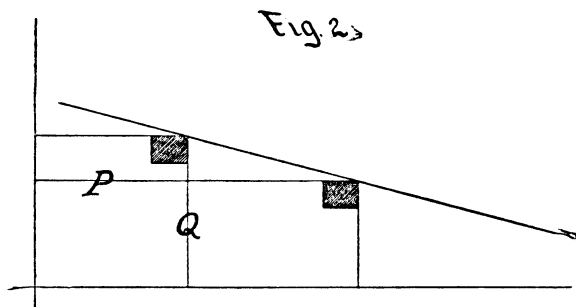
increased. In a state of normal prosperity, this means that investment has increased more rapidly than marginal returns have decreased. We may now permit ourselves to make use of the merchant's value in speaking of society as a whole; for while for purposes of prosperity-study we generally think of society as a producer rather than as an exchanger, still as we proceed from smaller to larger and larger social groups, no moment can be shown when society ceases to be an exchanger. In fact, as has been already hinted, one age or epoch does, in a sense, exchange with another, for the totality of deferred payments in a society is equivalent to a simultaneous payment from one society to another that has a different margin of production and consumption, and a different total value. In making such an exchange allowance must be made for the change in margin, in order that the relation of the particular value to the total or normal value may be known.

There is no reason, therefore, why we should not, at will, transfer our value F into a value M , even when dealing with the sum of social goods and values. The object, of course, is to isolate the value element of utility for comparison between total values of different periods. As has been already shown, the element of utility is concealed in value F , but is isolated as a margin in value M , and hence may be directly employed in that form.

Expressed in M , increased prosperity means that goods have increased more rapidly than their marginal utility has decreased. This increase of goods and decrease of marginal utility is a normal cause of the change in total values. They are, therefore, simply an expression of the law of value engaged in the function of determining the standard, and deferred payments must conform to them. They will conform in the following manner: the change in normal value will make it necessary for S to return to R more or less goods in order to keep the value equal. The same value will form a smaller part of the greater aggregate of values in existence

at the later period, and may require less or more goods to represent it. The proportion of the same value to the greater total will vary inversely as that total; *e. g.* the value of wheat in B₁ is inversely to the total value in B₆, as that total value is greater than B₁. Now, this result is conceivably accomplished by increasing the money in the country in direct proportion with the increase in total value; for then, owing to the well-proven law that the demand for money varies uniformly in inverse proportion to the supply, rate of circulation remaining the same, each piece of money will have diminished in exchange value below the exchange value it would have had if values alone had increased and money had remained stationary, exactly in proportion as the whole amount of money has increased. An increase in values, the volume of money remaining constant, would have increased the exchange value of money proportionally. A proportional increase in the volume of money will again reduce its exchange-value to what it originally was. Now, in the case of money, exchange-value is the all-important aspect of value. Therefore, the desideratum in the mechanism of deferred payments is that the exchange-value of money remain constant. If this is accomplished, then the same amount of money will always return the same purchasing-power. Note the abuse of this lucid proposition by those who pervert "purchasing-power" into power to purchase the same number of commodities or the same number of days' labor or the same total utility instead of the same *value* of commodities or the same *value* of days' labor, or the same *value* of utilities. (As to the last point, it will be shown later that those utilities which are not the result of calculation, and thus a subject of economic measure, are not a part of economic value.) Consequently, each piece of money represents the same purchasing-power that it did before, and if S returns to R the price agreed upon when he received them from R, he will return the same purchasing-power.

Let P and Q (Fig. 2) represent the total values of the years 1890 and 1900, respectively, in the same society. The small black surface in P represents the value of a debt of \$100 incurred in 1890. The same surface in Q represents the same value to be returned in 1900. Value is thus seen to be absolute and permanent. Now, suppose the black surface to be $\frac{1}{1000}$ of total value P, and $\frac{1}{1500}$ of total value Q. It is plain, from the above considerations, that, in order that \$100 shall return the same value in 1900 that it afforded in 1890, the amount of money in the community must have been increased in the proportion of 1500 to 1000. It must always be remembered that the very unreal assumption is



made, *argumenti gratia*, that society regulates value through the circulating medium alone.

If, however, S returns the same quantity of goods, he returns less purchasing-power, because, with the increase of total values, there has, on our supposition, occurred a decrease in the value of goods; it now takes the same money, but more goods, in order to return the same value. The reason of this is that, while the normal production of society has increased, the marginal utility of goods has decreased. Suppose, in the former period, the number of goods was 10 and their marginal utility was but 5; then their value was 50. If, in the later period, the marginal utility of goods had gone down to 4, their value, 40, evidently would not pay the debt. A return of the same number of commodities

would cheat the creditor. It would be necessary to add 10 more units of commodity. If, however, the normal production was now 60, 10 commodities could easily be added and still a surplus of 10 be left for the producer. Now a return of the same amount of money would effect this division of the surplus production.

The variation in total value is thus clearly seen to rest upon two social norms or uniformities, a norm of production and a norm of utility. It makes little difference to the present argument whether they be looked upon as totals or as averages. It is, perhaps, better to treat them as averages incidental to the totals, *i. e.* as average production and average utility. In any case they can only be found by an investigation and summation of all socio-economic forces. They represent the condition and circumstances of the Economic Man—the man in average economic circumstances; not the economic man in the sense of a man who makes abstraction of economic motives from all others, but the man whose acts are relative to his day or epoch. We have here, evidently, no arbitrary distribution based upon vague considerations of policy or expediency with respect to political conduct toward classes in society, but a strict apportionment of the total wealth according to economic norm, *viz.* the law of value. It is true that the law of value, which is seen to be decisive of deferred payments, rests upon utilities. But they enter into its conclusions in a peculiar way, which has only been discovered after painstaking investigation, namely, through, or at, a margin of some sort.

It is to this point that the critics of value have directed their attacks when, convinced that the marginal reasoning applies to sales for cash, they retire into an inner line of defences, claiming that, in the case of deferred payments, general utilities, *i. e.* "policy" as to which classes in the community are to be preferred, are the only guides. The above reasoning shakes this defence. It would appear, indeed, that every possible motive of utility may have directly

or indirectly its economic effect; but that these effects work through a margin in the manner described above. However, in order thoroughly to vanquish the champions of "general utility," it will be necessary to carry the position of the advocates of "total utility" also.

It will now be understood more clearly that there is some reason for using the expression "exchange in time" instead of "deferred payments"; for precisely the same principles apply as in the case of ordinary exchange. There is one difference that clearly distinguishes the two cases: when exchange takes place simultaneously, then the margin of utility is the same for both parties; that is, it is determined by the same social margin of production and consumption, and therefore no account needs to be taken of changes in that margin; when, however, time has elapsed, we are compelled to inquire whether the margin of social production, and hence of social utility, has changed. Thus the marginal theory fits in both cases. It is no part of the scheme of such a paper as this, to indicate that system of money which will best satisfy this law; in fact, such an inquiry hardly belongs to the province of economics. The law that commodities exchanged at one moment are of equal value, needs no legislation to enforce it. It is true that a clear apprehension of such a law will assist legislators in facilitating its operation and deter them from obstructive measures. In the same way, the law of exchange in time must be presumed to express a constant tendency of economic activity. The mechanism by which society effects this tendency still needs study. It does not appear to lie wholly in the vulgar standard of value, *i. e.* the monetary supply. There may be various economic forces at work to give economic equivalent to the debtor or creditor apparently injured by excessive fluctuations in the supply of money. It has been suggested*

* Professor J. B. Clark thinks that the present (gold) metallic standard has substantially carried out the law of marginal value. See "The Gold Standard of Currency in the Light of Recent Theory," *Political Science Quarterly*, September, 1895. We must suppose, however, that under a silver standard or in a state of barter, society would be always striving to return equal values.

that there is a tendency to a fall in the rate of interest which seems calculated by the laws of society to compensate the debtor for loss occasioned by fall in prices. A more fundamental suggestion, perhaps, is that the appreciation, if any, of the circulating medium in the United States has been arranged by society to compensate capitalists for the great losses they have sustained through ignorant anti-capitalistic legislation. It may be that there are other compensations. At any rate, the exclusive province of the economist ceases with the formulation of the law; the statistician may furnish materials for decisions whether present conditions are obstructive of, or conducive to, its operation.

THE RELATION OF THE THEORY OF RENT TO THE STANDARD OF VALUE AND DEFERRED PAYMENTS.

Some of the objections which have been raised to the use of the doctrine of marginal value in order to determine normal economic conditions of society, and thus obtain a standard of value, appear to rest upon a conception of that doctrine different from that which is ordinarily accepted, and to confuse the several meanings of "utility," "value," and "rent." The contention that the money circulation or distributing medium should vary in proportion to total utility, rather than in proportion to value, is especially open to this criticism.* This contention seems to imply that the total value theory leaves out of consideration that portion of the total utility which is ordinarily cut off as rent. That this is the point of view, is confirmed by the illustrations employed. Thus it is said that it makes a great difference to the owner of a well whether you propose to take a drink of water or to drain off all the water in the well. In the former case, he will value water very little, and in the latter, very much. Therefore, the value of a cup of water is no indication of the value of the water in the well. In the

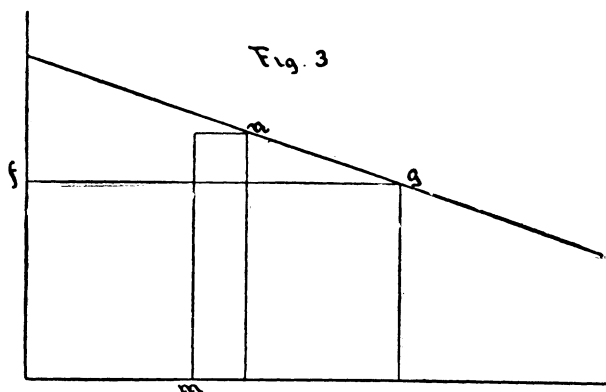
* Edward A. Ross, "Total Utility Standard of Deferred Payments." *ANNALS*, November, 1893. Vol. iv., p. 425.

market, on the other hand, the value of the portion of the supply sold is an indication of the value of the whole, because the law of substitution says that if a higher price were asked, another equal commodity would be offered. But society at large is likened by the critics of the marginal theory to the owner of the well. No substitution is possible in society at large, and hence here also the distinction between total value and total utility is lost. This novel restriction of the application of the marginal theory of value seems to rest primarily upon the idea that this theory teaches that a margin once fixed is never changed, no matter what variation takes place in the supply of the community. But the marginal theory does not teach that the value of water in Jones's well is fixed, once for all, by the utility of a cup of that water at a moment arbitrarily chosen. On the contrary, that theory teaches that the value of the well water is *absolutely* fixed *only* in relation to the moment of time when the utility of the cup of water is in question. In a season of drought the utility of a cup of water would be much greater and the value of the well would still depend upon the number of cupfuls which it could offer as substitutes for the one in question.

That this misconception is the source of the new opinion, is shown by the use of the term "intra-marginal" value. Now, is there any such thing as intra-marginal value?—for all value is marginal value, repeated as often as necessary at the moment of estimation. If one or more commodities be removed from the stock, then a new marginal value arises, which, in turn, is attributed to all remaining goods or utilities. Thus, in the case of the well, the removal of a moderate quantity of water might cause the total value of the well to diminish; but if only a little water remained, the total value might be greater than ever before. A new value will arise with each abstraction of water, and this value will be an entirely different quantity from the total utility of the water; but will, nevertheless, in each case, depend indirectly

upon the total utility of the whole, through the immediate influence of the utility of the last or marginal cupful. Precisely the same thing is true of society. The reasoning of the present paper goes to show that its total value is dependent upon its marginal value, through its total utility or total production. If society be deprived of a portion of its goods, a new margin will be formed and a new total value will arise. The marginal theory of value is based upon the idea of utility, and teaches that utility has two functions:

- I. It forms value.
- II. It is distributed by value.

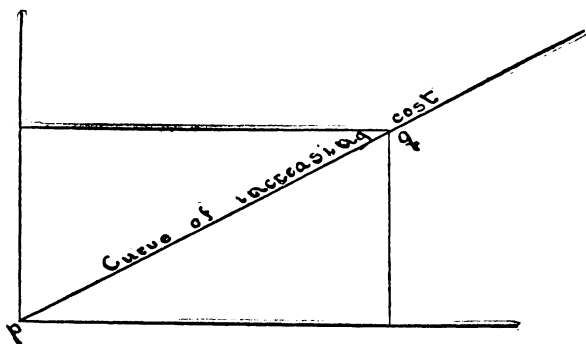


It seems to the present writer, that the functions of utility are exhausted in performing these two duties. The influence of utility in creating value has already been alluded to. The second duty of utility, that of being distributed by means of value, may readily be illustrated. Figure 3 may be taken to represent either merchant's or farmer's value. In the former case, the marginal value alone is attributed to the commodity m , the utility of which, mn , is much greater than that at the margin. Now, that portion of mn which lies above the line fg is called rent. Its meaning is that the utility of m is inevitably distributed in the proportion that the two portions bear to each other. This distribution

is not a result of the fact that the value is intra-marginal, but of the fact that the value is attributed to the commodity m , which is intra-marginal.

Again, suppose Fig. 3 to represent farmer's value. In place of total commodities, we have total investment; and in place of utilities, we have commodities. The area below the line fg represents producer's values, *i. e.* the amount of commodities which just repays the total investment; and the area above fg the excess of commodities above the marginal return, which constitutes rent. In this case it is equally true that the commodities mn , which correspond to

Fig. 4.



the investment m , serve to distribute the utilities produced by the same investment. The produce mn really represents a certain amount of utility, although decreasing from the bottom upward; and hence, through produce, there is a real distribution of utility in this case also. In this case, indeed, the fact of distribution is so universally admitted as to need no argument. And if the distributional rôle of utility were still doubted, it would be decisively proved by considering the element of cost in merchant's values (Fig. 4). The portion of value, which lies above the line pq , is producer's rent.

What further and different influences can be attributed to utility? The claim that the norms governing return-payments vary as total utility, seems to imply that the portion of utility which distributes rent would otherwise be neglected. It has, however, already been shown that the portion of utility so set apart has previously exerted its full influence in the formation of value, together with every other portion of utility. To count it in as an element additional to value, would be to count it twice; and to count total utilities in direct proportion to their areas as decisive of proportion in exchange of commodities, is simply to negative the marginal theory of value.

SUMMARY.

The conception of value pointed out in this paper is the result of a desire to contribute to a solution of the question of deferred payments. It was perceived that this question depends upon a combined working of two elements in value, one of which has received most exhaustive treatment at the hands of economists, while the other, belonging as it does to the borderland between economics and sociology, has but recently attracted attention. The values of exchange and the values of progress are the same, but the full treatment of the former has preceded that of the latter. It was soon observed that the question of deferred payments appeals to the new theories of value because they are essentially connected with the amount of social wealth, which is a quantity in the science of social progress. In order, therefore, to make use of the theories already well developed in the world of exchange, it was found necessary to emphasize, and, in fact, to point out the comprehensiveness of those theories, by showing in every way their continuous application through the whole of economic life, and to prove their conformity with the highest test of universality, viz. the maxim "*Natura saltum non facit!*" Symbolical representation was appealed to, and as earlier economists had given definiteness

to their reasonings on value by the mathematical concept of a ratio or of an equation, so now the attempt has been made to lend definiteness to the new doctrine by the geometric concept of a surface.

The stimulus afforded to the imagination by the area-concept helps us to appreciate at once the comprehensiveness and the unity of the marginal concept of total value. We perceive that total value may be split up in two different ways, according to the nature of the economic category in which it was originally combined. In the world of distribution, total value is analyzed into the two factors: stock of goods and final rate of satisfaction afforded by them. In the world of production, the same quantity of value is resolved into the two factors: labor (as a familiar expression for all cost), and final rate of production of labor. Both products or areas are determined by consideration of final utility and both are true values. The same method of reasoning that applies to smaller values applies also to larger ones; hence the total value produced and enjoyed by society may be split up in the two ways described. In taking the sum of social values, the procedure by way of producer's value (F) has the distinct advantage that it enables us to perceive how the individual is kept in organic touch with productive society, neither falling absolutely behind it nor advancing before it. It is through this organic connection that a normal production is established. The values thus produced naturally resolve themselves into a normal quantity of labor and a normal marginal rate of returns to labor. Thus these values are a function of the two elements of industrial progress: they depend on the normal ease of production and the normal willingness to produce.

The reality of the conception of a normal social value is fundamentally rooted in the historical conception of the relativity of truth. Normal value is relatively true, *i. e.* it is a conception directly depending upon the facilities for supply and the capacities for demand that have been evolved

in the race at the moment chosen for inquiry. While the relativity of value establishes the truth of the social concept of value, the universality of value allows us to apply to larger and larger groups the methods of thought that have been approved for individual cases.

The second advantage flowing from the double analysis of value is that it enables us to perceive that every individual economic act has its effects upon total prosperity. The old method of confining the mathematical image of value to the ratio of the equation, monopolized the term "value" for what is really merely one of the effects of value.

In the question of deferred payments, the application of the method produces direct and simple results. Equal particular value-areas, representing debts, will bear inverse proportion to the increasing social value-areas. This simple statement completes the whole of the theoretical question of deferred payments.

Perhaps no higher test of the truth of a concept can be established than is to be found by studying its utility. The relativity of truth means its dependence upon utility. The foregoing utilization of the concept of value as an area appears to establish its truth. The highest utility which a concept can subserve in economics is that of unifying all categories of the science; in other words, that of creating a system. Economists have adopted from metaphysics the power of creating a system as the test of truth. The more diverse the phenomena that are reconciled, the greater the probability of the truth of the concept. If, therefore, the concept of value as an area establishes a complete continuity between values at one moment, and then again between such values and values at different moments, bridges the breach between exchange-values and wealth, and establishes a logical standard of deferred payments, it must be true.

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